Great Lakes Basalt (Conglomerate) Bedrock Lakeshore Sparse Vegetation

COMMON NAME	Great Lakes Basalt (Conglomerate) Bedrock Lakeshore Sparse Vegetation
SYNONYM	Great Lakes Basalt (Conglomerate) Bedrock Lakeshore
PHYSIOGNOMIC CLASS	Sparse Vegetation (VII)
PHYSIOGNOMIC SUBCLASS	Consolidated rock sparse vegetation (VII.A)
PHYSIOGNOMIC GROUP	Sparsely vegetated pavement (VII.A.2)
PHYSIOGNOMIC SUBGROUP	Natural/Semi-natural (VII.A.2.N)
FORMATION	Pavement with sparse vascular vegetation (VII.A.2.N.a)
ALLIANCE	OPEN PAVEMENT SPARSELY VEGETATED ALLIANCE

CLASSIFICATION CONFIDENCE LEVEL 2

USFWS WETLAND SYSTEM TERRESTRIAL

RANGE

Isle Royale National Park

This community is uncommon; it occurs primarily along the southeast shores of Isle Royale, with a few widely scattered sites along the northwest shore on peninsulas, islands, or coves that are exposed on their east, southeast, or south sides to wave wash and ice scour.

Globally

This associations is found in Michigan, Minnesota, and Ontario.

ENVIRONMENTAL DESCRIPTION

Isle Royale National Park

This community occupies rugged, rocky shores of Lake Superior where the exposed bedrock is basalt, sandstone, or conglomerate that has a gentle to somewhat steep, usually southeast- (or south- or east-) facing slope. Elevations range from lake level to about 620 feet. This community is restricted to shores most exposed to wave wash and ice-scour, and does not occur in protected bays or harbors.

Globally

The bedrock consists of basalts, volcanic conglomerates, and localized rhyolites. Volcanic conglomerate shores may be more species rich than basalt shores due to the presence of cracks or small cavities in the former. Wave action and ice scour action exert a strong influence on the vegetation, producing a wave-washed zone almost devoid of vegetation near the shore, and scattered patches of vegetation further above the lakeshore (Albert *et al.* 1995).

MOST ABUNDANT SPECIES

Isle Royale National Park

Stratum	Species
Short shrub	*Physocarpus opulifolius, Pentaphylloides floribunda, Juniperus horizontalis*
Forb	*Sibbaldiopsis tridentata, Oligoneuron album, Campanula rotundifolia*
Nonvascular	*Xanthoparmelia* spp., *Xanthoria elegans, Rhizocarpon geographicum*

Globally

Stratum	Species
Short shrub	*Physocarpus opulifolius, Pentaphylloides floribunda, Juniperus horizontalis*
Forb	*Sibbaldiopsis tridentata, Oligoneuron album, Campanula rotundifolia*
Nonvascular	*Xanthoparmelia* spp.

CHARACTERISTIC SPECIES

Isle Royale National Park

Sibbaldiopsis tridentata, Oligoneuron album, Campanula rotundifolia, Xanthoparmelia spp., *Xanthoria elegans, Rhizocarpon geographicum*

Globally

Sibbaldiopsis tridentata, Oligoneuron album, Campanula rotundifolia, Xanthoparmelia spp.

VEGETATION DESCRIPTION

Isle Royale National Park

At Isle Royale NP, Great Lakes basalt (conglomerate) bedrock lakeshore is a sparsely vegetated community dominated

by lichens and mosses. Crustose and foliose lichens are common to abundant (average 25 - 50% cover); characteristic nonvascular plants are the lichens *Xanthoparmelia* spp., *Xanthoria elegans*, *Rhizocarpon geographicum* and other *Rhizocarpon* spp., *Acarospora* spp. and *Lecanora muralis,* and *Schistidium* mosses; the most abundant herb is *Sibbaldiopsis tridentata* (= *Potentilla tridentata*) (average 2% cover), other characteristic herbs of dry rocks are *Oligoneuron album* (= *Solidago ptarmicoides*), *Campanula rotundifolia, Carex umbellata*, and *Achillea millefolium*; woody plants consist of dwarf forms of tree and shrub species, mostly under 1 m tall; characteristic woody plants of dry rocks are *Physocarpus opulifolius, Pentaphylloides floribunda* (= *Potentilla fruticosa*), *Juniperus horizontalis, Thuja occidentalis*, and *Arctostaphylos uva-ursi*; in areas where seepage keeps rocks moist, or fills rock pools and allows miniature perched meadows to develop on the rock, characteristic herbs are *Scirpus cespitosus, Primula mistassinica, Castilleja septentrionalis*, and *Tofieldia glutinosa.*

Globally
Wave action and ice scour action are strongest near the shore, producing a wave-washed zone almost devoid of vegetation, except for scattered patches of mosses and lichens, and pockets of herbaceous species around bedrock pools. Crustose and foliose lichens are common to abundant (average 25 - 50% cover). On Isle Royale, characteristic nonvascular plants are the lichens *Xanthoparmelia* spp., *Xanthoria elegans*, *Rhizocarpon geographicum* and other *Rhizocarpon* spp., *Acarospora* spp. and *Lecanora muralis,* and *Schistidium* mosses (C. Reschke personal communication 1999). With increasing distance above the lake, herbaceous and nonvascular plant cover increases, though still very patchy, with lichens predominating, particularly on high, dry rocks. Herbaceous species include *Achillea millefolium, Campanula rotundifolia, Fragaria virginiana, Sibbaldiopsis tridentata (=Potentilla tridentata)*, and *Solidago simplex*. Perched meadows, dominated by tufted graminoids, are found at the edge of seasonal pools. The most common meadow species are *Calamagrostis canadensis, Carex buxbaumii, Carex castanea, Danthonia spicata, Deschampsia cespitosa, Scirpus cespitosus*, and *Trisetum spicatum*, as well as *Pinguicula vulgaris*. Lichens, mosses, and liverworts are prominent. Scattered, often stunted, woody trees and shrubs are found throughout, including *Abies balsamea, Amelanchier* spp., *Juniperus communis, Picea glauca, Populus tremuloides, Rubus pubescens, Shepherdia canadensis, Thuja occidentalis*, and *Vaccinium angustifolium* (Albert *et al.* 1995).

OTHER NOTEWORTHY SPECIES
Isle Royale National Park
Information not available.

CONSERVATION RANK G?.

DATABASE CODE CEGL005215

MAP UNITS 51

COMMENTS
Isle Royale National Park
Globally
Wave action and ice scour action are the primary disturbances affecting the vegetation. Near the lakeshore a wave-washed zone is almost devoid of vegetation. A gradient of increasing vegetation occurs further above the lakeshore (Albert *et al.* 1995).

REFERENCES
Albert, D. A., P. J. Comer, R. A. Corner, D. Cuthrell, M. Penskar, and M. Rabe. 1995. Bedrock shoreline survey of the Niagaran Escarpment in Michigan's Upper Peninsula: Mackinac County to Delta County. Michigan Natural Features Inventory for Land and Water Management Division (grant # CD-0.02).